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TCF-4 siRNA (h): sc-43525

BACKGROUND

T cell factors (TCFs) comprise a family of DNA-binding transcriptional activators that are essential for lymphoid cell development. These transcription factors are activated by the Wnt-1 and Wingless pathways and are characterized by the presence of a conserved protein motif, the high mobility group (HMG) 1 box, which mediates DNA binding. TCF-4 mainly localizes in the cytoplasm and is transported into the nucleus directly bound to β -catenin in a cooperative manner. This TCF-4/ β -catenin complex induces expression of Wnt target genes, including multiple cancer-associated genes. c-Jun also interacts with TCF-4 and β -catenin, and the phosphorylation-dependent interaction between c-Jun and TCF4 regulates intestinal tumorigenesis by integrating JNK and APC/ β -catenin. TCF-4 is also implicated in bipolar affective disorder.

CHROMOSOMAL LOCATION

Genetic locus: TCF7L2 (human) mapping to 10q25.2.

PRODUCT

TCF-4 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TCF-4 shRNA Plasmid (h): sc-43525-SH and TCF-4 shRNA (h) Lentiviral Particles: sc-43525-V as alternate gene silencing products.

For independent verification of TCF-4 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-43525A, sc-43525B and sc-43525C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

TCF-4 siRNA (h) is recommended for the inhibition of TCF-4 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

TCF-4 (D-4): sc-166699 is recommended as a control antibody for monitoring of TCF-4 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TCF-4 gene expression knockdown using RT-PCR Primer: TCF-4 (h)-PR: sc-43525-PR (20 μ l, 434 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Dieudonné, F.X., et al. 2010. High Wnt signaling represses the proapoptotic proteoglycan Syndecan-2 in osteosarcoma cells. *Cancer Res.* 70: 5399-5408.
- Jiang, G., et al. 2013. Targeting β -catenin signaling to induce apoptosis in human breast cancer cells by z-guggulsterone and Gugulipid extract of Ayurvedic medicine plant *Commiphora mukul*. *BMC Complement. Altern. Med.* 13: 203.
- Ling, H., et al. 2013. CCAT2, a novel noncoding RNA mapping to 8q24, underlies metastatic progression and chromosomal instability in colon cancer. *Genome Res.* 23: 1446-1461.
- Wang, N., et al. 2016. Activation of Wnt/ β -catenin signaling by hydrogen peroxide transcriptionally inhibits $\text{Na}_v1.5$ expression. *Free Radic. Biol. Med.* 96: 34-44.
- Khare, V., et al. 2019. RNA helicase p68 deploys β -catenin in regulating RelA/p65 gene expression: implications in colon cancer. *J. Exp. Clin. Cancer Res.* 38: 330.
- Hwang, J.S., et al. 2020. Transcription factor 4 regulates the regeneration of corneal endothelial cells. *Invest. Ophthalmol. Vis. Sci.* 61: 21.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.